

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) An audio conditioning apparatus for conditioning an audio signal to be output, said audio conditioning apparatus comprising:
 - an input for receiving the audio signal;
 - a noise characterizing unit for determining a noise level of environmental noise in a mid-range frequency noise band;
 - a volume amplification unit coupled to said input for amplifying a volume of the audio signal for all frequencies of the audio signal by a volume gain in dependence on the noise level in the mid-range frequency noise band;
 - a further noise characterizing unit for determining a further noise level of the environmental noise in a bass frequency noise band or a treble frequency noise band; and
 - a further amplification unit coupled to said volume amplification unit for amplifying by a further gain the amplitude of frequency components in a bass frequency audio band or a treble frequency audio band of the audio signal, in dependence of the further noise level of the environmental noise in the base or treble frequency band, respectively, to perceptually mask the environmental noise in the base frequency noise band or the treble frequency noise band from a respective base frequency or treble frequency audio band of the volume amplified audio signal,
 - wherein said noise characterizing unit determines said noise level of environmental noise based in a mid frequency noise band of said environmental noise, said mid-range frequency noise band being complementary to said base frequency noise band and said treble frequency noise band, covering frequencies not in said base frequency noise band and said treble frequency noise band,

and wherein said audio conditioning apparatus further comprises:

a gain dispatcher unit coupled to said input for allocating a maximum allowable gain of the volume amplification unit and the further amplification unit on the basis of available headroom for amplification.

2. (Previously Presented) The audio conditioning apparatus as claimed in claim 1, wherein an upper limit of the bass frequency audio band substantially lies in the range of 60 to 150 Hz, and wherein a lower limit of the treble frequency audio band substantially lies in the range of 8 kHz to 12 kHz.

3. (Previously Presented) The audio conditioning apparatus as claimed in claim 1, wherein said audio conditioning apparatus further comprises:

a gain consistency unit coupled to said noise characterizing unit and said further noise characterizing unit for yielding a gain consistently varying in time, according to a predetermined mathematical criterion.

4. (Canceled)

5. (Previously Presented) The audio conditioning apparatus as claimed in claim 1, wherein the further amplification unit comprises a shelving filter.

6. (Previously Presented) The audio conditioning apparatus as claimed in claim 1, wherein said audio conditioning apparatus is connectable to a headphone loudspeaker usable for reproduction of the audio signal, and wherein said audio conditioning apparatus further comprises an active noise canceling unit for substantially cancelling environmental noise in a cancellation band of frequencies, the environmental noise being measurable by a microphone.

7. (Previously Presented) The audio conditioning apparatus as claimed in claim 6, wherein said audio conditioning apparatus further comprises a distance measuring device for measuring a distance between the microphone and the headphone loudspeaker.

8. (Previously Presented) An audio reproduction apparatus, comprising:
a loudspeaker for reproduction of an audio signal;
an access to an input audio signal on which the audio signal is based; and
the audio conditioning apparatus as claimed in claim 1.

9. (Currently Amended) A method of conditioning an audio signal comprising the steps of:

determining a noise level of environmental noise in a mid-range frequency noise band;

amplifying a volume of the audio signal for all frequencies of the audio signal by a volume gain in dependence on the noise level in the mid-range frequency noise band;

determining a further noise level of the environmental noise in a bass frequency noise band or a treble frequency noise band; and

amplifying frequency components in a bass frequency audio band or a treble frequency audio band of the audio signal by a further gain in dependence of the further noise level of the environmental noise in the bass frequency noise band or the treble frequency noise band, respectively, to perceptually mask the environmental noise in the base frequency noise band or the treble frequency noise band from a respective base frequency or treble frequency audio band of the volume amplified audio signal,

~~wherein said step of determining a noise level of environmental noise is based on a mid-frequency noise band of the environmental noise, said mid-range frequency noise band being complementary to said bass frequency noise band and said treble~~

frequency noise band, covering frequencies not in said base frequency noise band and said treble frequency noise band,

and wherein said method further comprises the step of:
allocating a maximum allowable gain of said amplifying steps on the basis of available headroom for amplification.

10. (Previously Presented) A computer readable medium containing a computer program product enabling a processor to execute the method as claimed in claim 9.